

DRAFT WILDLIFE RESOURCES STUDY PLAN

Cascade Creek Hydroelectric Project (FERC No. 12495-002)

Cascade Creek LLC

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BACKGROUND

In February, 2008, Cascade Creek Limited Liability Corporation (“CCLLC”) received a Preliminary Permit (“Permit”) for the Cascade Creek hydroelectric Project (FERC No. 12495-002, “Project”) from the Federal Energy Regulatory Commission (FERC) in Washington D.C. The Project would be located approximately 15 miles N.E. of Petersburg, Alaska, and would affect Swan Lake, Falls Lake and Cascade Creek. The Project is described in detail in Scoping Document 1 (SD1, CCLLC May, 2009)

Generally, the Project would consist of an intake structure and an outlet control structure at Swan Lake, a power conduit consisting of a mostly unlined 12 foot diameter tunnel and steel penstock leading to a powerhouse located at tidewater on Thomas Bay. Installed capacity of the Project would be approximately 70 megawatts (MW). The current operational proposal is to draw water from Swan Lake in such a way as to minimize unnatural lake level fluctuations, with final drawdown prescriptions determined based on further economic and environmental considerations.

During Initial Consultation and Scoping, Project Stakeholders including Alaska state and federal resource agencies indicated concern for Project effects on wildlife resources within the project area and close proximity. This draft study plan intends to respond to study requests made during the Scoping Process and is the first step in developing a final study plan approved by all consulting parties.

OBJECTIVES

This study plan is designed to address baseline and impact-evaluation data needs which will allow CCLLC and Stakeholders to evaluate Project-related impacts. Objectives of the proposed 2010 studies are to provide information suitable to: 1) Establish baseline wildlife resources data in areas potentially-affected by the Project; and; 2) Evaluate the effects of Project construction and operation of the Project in those areas.

OVERALL STUDY SCOPE

The wildlife study scope will include the following elements:

- 1) A detailed literature survey to gather existing data and information on all wildlife resources in the area;

- 2) Field surveys to note presence, relative abundance, life history and habitat descriptions and use of wildlife species (including mammals, birds and amphibians) in the project area;
- 3) Habitat and vegetation assessment resulting from on-the-ground field surveys, above, and aerial surveys and existing vegetation mapping.

(Note: Comments on the Scoping process presented detailed recommendations on studies for moose, mountain goats and wolverines. CCLLC recommends that a wildlife study workgroup be assembled among CCLLC and agency wildlife specialists to jointly prepare detailed study plans for these species. The workgroup would convene during Spring, 2010, with the objective of finalizing study plans before the onset of the 2010 field season).

STUDY AREA

Generally, wildlife studies will be conducted at various levels of intensity within the Swan Lake/Cascade Creek basin and in areas along the proposed transmission line route. Swan Lake's major inflow tributary, designated "Cascade Creek" on topographic maps, will be called "Upper Cascade Creek" in this and other plans to distinguish it from Cascade Creek below Swan Lake, which will be called "Lower Cascade Creek" in these plans. Upper Cascade Creek includes that waterbody from its headwaters to its confluence with Swan Lake. Lower Cascade Creek extends from the outlet of Swan lake to tidewater.

Studies described in the following plan will be referenced relative to:

- Upper Cascade Creek and the Swan Lake basin upstream of Swan Lake;
- Swan Lake and its immediate surroundings;
- The Lower Cascade Creek corridor;
- Falls Lake and its immediate surroundings;
- The southern arm of Thomas bay;
- Transmission/Access corridors associated with Alternatives "A" and "B", as described in SD1; and
- The transmission corridor from the Patterson Delta to Petersburg.

MAJOR STUDY ELEMENTS

Wildlife studies will consist of two major components, a literature and information search, and field surveys, as described in below.

Literature Search

CCLLC will conduct a literature review to help develop a complete list of wildlife species known or thought to use the Project area. The study will assemble existing

wildlife information for the project area within the Thomas Bay/Swan Lake/Cascade Creek vicinity and along the transmission corridor to Petersburg.

Primary sources will include, but not be limited to:

- US Forest Service (USFS) Tongass National Forest survey and planning reports, noting any sensitive species, species of special concern, or indicator species;
- Alaska Department of Fish and Game (ADF&G) periodic wildlife surveys, harvest records for big game, wildfowl, trapping and other activities, and records of subsistence uses and takes in the overall area. Researchers will contact US
- US Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) for information on federally-listed threatened, endangered or candidate species; and
- Alaska Natural Heritage Program (AKNHP) listings for important and sensitive species; and
- Academic libraries of the University of Alaska and its affiliates in southeast Alaska, as well the Environment and Natural Resources Institute, Anchorage.

Finally, wildlife researchers will establish communication with Cultural Resources researchers to assure inclusion of tribal knowledge of distribution, importance and use of wildlife species in the affected area.

Field Surveys

Field surveys will be conducted in various areas to determine distribution, relative abundance and life history of wildlife species.

Foot surveys. Generally, foot surveys will involve ground observations by a wildlife specialist knowledgeable in identifying wildlife species, sign, life history activity, and habitat. The researcher(s) will survey established routes on foot, noting, among other factors:

- Sightings of large and small mammals, amphibians and birds;
- Sign, including such items as tracks, scat, rubs, runs, shed antlers, carcasses and dens for mammals and droppings, owl pellets, nests and other items for birds;
- Habitat types and their associations with fauna either sighted or noted through sign.

Actual foot survey routes will be largely determined after researchers have done a ground reconnaissance within the study area. Foot surveys will include, to varying degrees, all areas potentially affected by construction or long-term operation in the lake and intake, powerhouse and transmission line areas. Access and topography are expected to limit survey areas, particularly in the Lower Cascade Creek area which is particularly steep and heavily vegetated and may not be accessible during much of the year. Swan Lake and the lower reaches or Upper Cascade Creek are more accessible, particularly using float plane access to Swan Lake.

Prior to foot surveys, researchers will prepare a survey area map and record observations on the map and in terms of GPS coordinates, to the extent possible. The result of these early efforts will be maps on which proposed foot survey boundaries within which foot surveys will be delineated. These maps will serve as base maps for all wildlife and perhaps other resource studies. Consulting resource agencies will be asked for review and comment on the proposed survey area(s).

Because of snow cover and safety concerns during much of the year, foot survey frequency will depend largely on access and safety concerns. At higher elevations, foot surveys will be conducted most frequently during the snow-free periods, but effort will be made to access areas during late winter and spring to assess overwintering activities, particularly for mountain goats. When access is less limited, foot surveys will be conducted no less than once every two weeks, with weekly surveys as a goal. Along the proposed transmission routes which lie at tidewater, access is expected to be less of a concern, and survey frequency may be more regular.

Species-Specific or Other Directed Surveys

Depending on results of the literature review and initial reconnaissance surveys, researchers may conduct the following surveys:

1. Deer Pellet Transect Surveys;
2. Deer Winter Range Assessment;
3. Small Mammal Surveys;
4. Marbled Murrelet Audio-Visual Survey;
5. Goshawk Broadcast Surveys;
6. Owl Broadcast Surveys; and/or
7. Songbird Breeding Surveys.

Standard methods for each of these survey types are available from ADF&G and other sources such as Pitcher (1988), Kirchhoff and Hanley (1992), Kirchhoff, and Lewis (2005), and the Habitat Hotline Method for Assessing Deer Winter Range in Southeast Alaska, among others.

More detailed plans for these studies will be prepared based on further resource agency consultation.

Boat Surveys. Some wildlife observation may be facilitated by using boats on Swan Lake and along the shoreline of Thomas Bay in the areas potentially affected by project generating and transmission line features. Boats will be used in these areas either for access to Swan lake or Thomas Bay foot survey areas, or to directly observe wildlife on or near shorelines and visible mountainsides. Boat survey areas will include transmission routes and all potential tidewater dock or equipment staging areas.

Camera Surveys. “Trail” or stationary infrared motion sensing cameras will be placed at selected locations near or within the intake site on Swan Lake, Falls Lake, sections of the Cascade Creek trail, the powerhouse site, the overland transmission corridor and other potential locations where significant wildlife activity is anticipated to occur.

Aerial Surveys. Aerial surveys from either a helicopter or fixed wing craft may occur as needed to view greater geographic areas otherwise inaccessible by foot or boat. Of particular interest for aerial surveys will be goat distribution during all seasons and bear denning, to note spring emergence from dens. Due to weather and cost constraints, aerial surveys may be limited. Target times periods to best utilize flight time will be discussed among consulting agencies. CCLLC may wish to coordinate aerial surveys with either ADF&G or USFS to share personnel and expense.

During all surveys researchers will note:

- Date/time/location;
- Weather conditions;
- Species or sign;
- Sex and life stage;
- Movement, behavior or other activity patterns;
- Evidence of life-history activity, such as denning, kidding, nesting, feeding, rearing, etc.

All survey observations will be documented, to the extent possible, using Global Positioning System (GPS) equipment, and will be noted on Project study area base maps.

These surveys will also be the primary source of information on existence of threatened or endangered (T&E) species. Any initial reports of T&E species will prompt discussions with USFWS and/or NMFS to determine if additional study effort is needed to adequately confirm sightings.

Habitat and Vegetation Evaluation. Using a combination of aerial and ground photos, topographic and existing resource maps as a primary data source, researchers will survey and document habitat features including vegetation community composition, estimates of relative percent cover of dominant species (e.g. willow, alder, cottonwood, sedges, forbs, grasses) and seral stage. Aerial imagery will be ground-truthed in accessible areas. Significant habitat features such as slopes, springs, rock outcrops, caves, mineral licks, wetlands, snags, dens and related will be catalogued. These surveys will be closely coordinated with botanical resource specialists who will be surveying the same areas for detailed plant distribution and abundance.

STUDY TIMEFRAME

Wildlife field studies will begin in April 2010 or as soon as the relevant study plans are approved by the agencies and permits are obtained. Studies herein will continue as planned up to the submittal of a FERC license application for the hydropower project

anticipated to be February 2011. Wildlife surveys will be done at various times depending on the technique, as described below and in Table 1:

Foot Surveys. Foot surveys will begin in the lowland areas starting April 2010 and ascend to the highland areas as snow pack recedes and access becomes feasible late spring or early summer. Foot surveys will be on a monthly basis until prohibited by winter snow accumulation.

Boat Surveys. Boat surveys of the marine shorelines will begin in April and within the freshwater lakes as soon as they are ice free, generally beginning late June or July 2010. Boat surveys will be on a monthly basis except for twice monthly during July, August and September and thereafter monthly until license application.

Aerial Surveys. Aerial surveys may be conducted in any season, regardless of snow cover, when weather permits. Given the challenging terrain and difficult access into most project areas, in addition to the often late snowpack, aerial surveys may afford the best data during periods when other methods cannot be used.

Camera Surveys. Cameras may be installed concurrent with foot surveys and potentially relocated from time to time depending on results. Cameras will be used throughout the survey period whenever accessible.

Table 1. Schedule for Cascade Creek Project Wildlife Surveys for 2010.

Field Technique	2010 Time Period
General Foot Surveys	Spring through winter
Deer pellet transect	Summer
Deer winter range assessment	Summer
Small mammal trapping	Summer through winter
Marbled murrelet audio-visual survey	Spring, summer
Northern Goshawk broadcast survey	Spring, summer
Owl broadcast survey	Spring, summer
Songbird breeding bird survey	Summer
Boat Surveys	Spring through winter
Aerial Surveys	Spring through winter

ENDANGERED SPECIES

To assure early determinations of whether endangered species occur in the Project area, researchers will consult during the early phases of wildlife and vegetation studies with USFS, USFWS and NMFS. As noted above, the initial and ongoing reviews of existing information will note all references to endangered species. In consultation with appropriate agencies, CCLLC will formally request comment on any endangered species occurrence in the Project area. Survey reports will have sections on endangered species sightings, if any.

The objective of the endangered species activities will be to have completed all endangered species reviews and surveys prior to submission of the Draft License Application for agency and public review. CCLLC, will , after agreement with USFS and USFWS, distribute for review a Biological Evaluation (BE) prior to license application.

REPORTING

Wildlife and habitat studies will be carried out until February 2011. A progress report documenting the wildlife and habitat surveys will be distributed monthly. Seasonal results will be prepared at the end of each calendar quarter with a final report installment January 31st, 2010.

The reports will generally contain the following sections:

Methods. The author(s) will describe observation methods, including sites, dates, observations recorded (wildlife numbers and species, weather, etc, as described above) identification keys used and other items.

Results. Authors will describe the results of the foot, boat, camera and aerial surveys and other recorded data. Study Area base maps will be used to the extent possible to identify wildlife locations from the surveys, noting habitat utilization and life history activities

A separate Results section will be devoted to T and E and sensitive species. In coordination with ADF&G, USFS and USFWS, researchers will compile and add to a list of potentially-affected sensitive species in addition to T&E species noted by USFWS. If any sensitive species are sighted, the significance of the observation will be reported and further documented to the above wildlife agencies via separate written report.

Discussion. This section will be brief and limited to general discussions of species present, timing and habitat utilization, as they relate to other areas in Southeast Alaska, and to any previous data collected in Project area. More intensive interpretation of these data in terms of species importance, impacts and mitigation measures will be done as part of development of the relicensing NEPA documents.

Recommendations. This section will focus on evaluation of previous studies and ways in which they might be improved. In successive months this section will be used to evaluate effectiveness of changes and the extent to which proposals have been achieved.

Impact and Mitigation Evaluations. As possible, reports will address potential project effects on wildlife and habitat. As appropriate, reports may address proposed changes in project operation, or effects of mitigation proposals which arise during the licensing process

MEETINGS

An initial wildlife workgroup meeting will be held as soon as possible prior to the beginning of 2010 field work. If possible, the meeting time will coincide with that of a similar meeting proposed for the Aquatic Resources Study Plan. The objective of the meeting will be to discuss the study approach and make any revisions necessary to address the needs of the participating agencies. After the meeting, CCLLC will provide draft meeting minutes for review, and, following finalization of the minutes and incorporation of revisions to the plans directed at the meeting, the Study Plans for both Wildlife and Aquatic Resources for the Project will be adopted as final.

LITERATURE CITED

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